

ROSETTA

Launch 2 March 2004

First Earth swing-by 4 March 2005

Mars swing-by 25 February 2007

Second Earth swing-by 13 November 2007

Steins fly-by 5 September 2008

Third Earth swing-by 13 November 2009

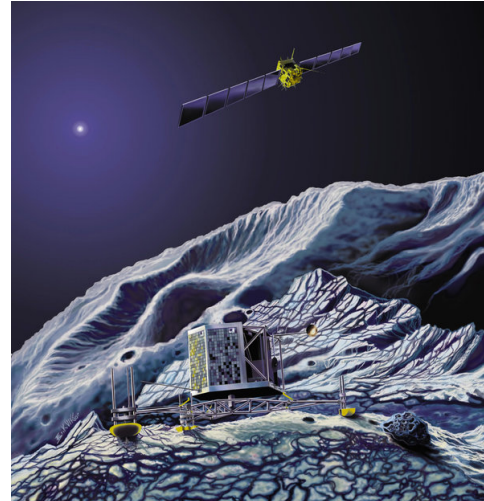
Lutetia fly-by 10 July 2010

Comet rendezvous maneuvers 22 May 2014

Lander delivery 10 November 2014

**Escorting the comet around the Sun November 2014 -
December 2015**

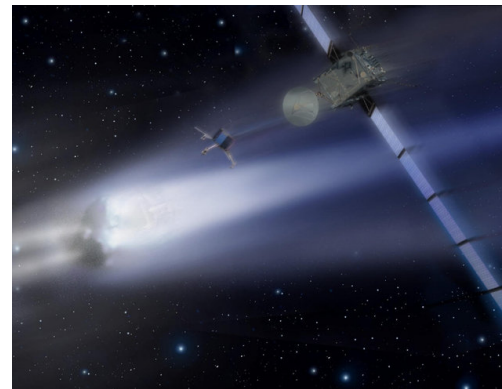
End of mission December 2015



ESA's Rosetta spacecraft will be the first to undertake the long-term exploration of a comet at close quarters. It comprises a large orbiter, which is designed to operate for a decade at large distances from the Sun, and a small lander. Each of these carries a large complement of scientific experiments designed to complete the most detailed study of a comet ever attempted.

ORBITER

After entering orbit around Comet 67P/Churyumov-Gerasimenko in **2014**, the spacecraft will release a small lander onto the icy nucleus, then spend the next two years orbiting the comet as it heads towards the Sun. On the way to Comet Churyumov-Gerasimenko, Rosetta will receive gravity assists from Earth and Mars, and will fly past main belt asteroids.



The main spacecraft, the orbiter, has dimensions of 2.8 x 2.1 x 2.0 metres, on which all subsystems and payload equipment are mounted.

There are two 14-metre solar panels with a total area of 64 square metres.

On one side of the orbiter is a 2.2-metre diameter communications dish – the steerable high-gain antenna. The lander is attached to the opposite face.

The Rosetta orbiter has eleven scientific instruments:

- ALICE Ultraviolet Imaging Spectrometer
- CONSERT Comet Nucleus Sounding
- COSIMA Cometary Secondary Ion Mass Analyser

GIADA Grain Impact Analyser and Dust Accumulator
MIDAS Micro-Imaging Analysis System
MIRO Microwave Instrument for the Rosetta Orbiter
OSIRIS Rosetta Orbiter Imaging System
ROSINA Rosetta Orbiter Spectrometer for Ion and Neutral Analysis
RPC Rosetta Plasma Consortium
RSI Radio Science Investigation
VIRTIS Visible and Infrared Mapping Spectrometer

LANDER

The 100-kilogram Rosetta lander is provided by a European consortium under the leadership of the German Aerospace Research Institute (DLR). Other members of the consortium are ESA and institutes from Austria, Finland, France, Hungary, Ireland, Italy and the UK.

Instruments

The Rosetta lander has nine scientific instruments:-

APXS Alpha Proton X-ray Spectrometer
ÇIVA / ROLIS Rosetta Lander Imaging System
CONSERT Comet Nucleus Sounding
COSAC Cometary Sampling and Composition experiment
MODULUS PTOLEMY Evolved Gas Analyser
MUPUS Multi-Purpose Sensor for Surface and Subsurface Science
ROMAP RoLand Magnetometer and Plasma Monitor
SD2 Sample and Distribution Device
SESAME Surface Electrical and Acoustic Monitoring Experiment, Dust Impact Monitor

Comet 67P/Churyumov-Gerasimenko has a nucleus about 4 kilometres wide. It orbits around the Sun every 6.6 years, between 186 million kilometres and 857 million kilometres from the Sun. It was discovered in 1969 by K. Churyumov (University of Kiev, Ukraine) and S.

Gerasimenko (Institute of Astrophysics Dushanbe, Tajikistan)

ref: http://www.esa.int/Our_Activities/Space_Science/Rosetta/Rosetta_at_a_glance2